

Association for Information Systems AIS Electronic Library (AISeL)

DIGIT 2007 Proceedings

Diffusion Interest Group In Information
Technology

2007

Do As Others Do: Modeling IT Adoption Intentions through Institutional and Social Contagion Theories

Richard Klein

Clemson University, rklein@clemson.edu

Nicholas Roberts

Clemson University, nhrober@CLEMSON.EDU

Follow this and additional works at: <http://aisel.aisnet.org/digit2007>

Recommended Citation

Klein, Richard and Roberts, Nicholas, "Do As Others Do: Modeling IT Adoption Intentions through Institutional and Social Contagion Theories" (2007). *DIGIT 2007 Proceedings*. 3.
<http://aisel.aisnet.org/digit2007/3>

This material is brought to you by the Diffusion Interest Group In Information Technology at AIS Electronic Library (AISeL). It has been accepted for inclusion in DIGIT 2007 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Do As Others Do: Modeling IT Adoption Intentions through Institutional and Social Contagion Theories

**Richard Klein
Nicholas H. Roberts**

Department of Management, College of Business and Behavioral Sciences, Clemson
University, 101 Sirrine Hall, Box 341305, Clemson, South Carolina 29634-1305
rklein@CLEMSON.EDU, nhrober@CLEMSON.EDU

Do As Others Do: Modeling IT Adoption Intentions through Institutional and Social Contagion Theories

Abstract

Recognizing that organizations reside in institutional networks that influence organizational structure and actions, this research proposes using social contagion theory to extend institutional theory-based research to predict organization intentions toward adopting an information technology (IT) innovation. Moving beyond the dominant “diffusion of innovation” approach to IT innovation, this study articulates a model of the “social contagion” of technology adoption. Rooted in social contagion theory, we suggest that cohesion and structural equivalence interact with mimetic and normative forces to shape organization adoption intentions. We suggest that cohesion moderates normative and mimetic predictors’ influence on firm IT adoption intentions. Also, we further posit that structural equivalence moderates the relationship between mimetic pressures and technology adoption intentions. By combining established institutional theory-based predictors of technology adoption with social contagion constructs, we broaden our understanding of IT innovation phenomena. The paper concludes with implications for research and practice.

Keywords: Institutional theory, information technology adoption, social contagion theory, mimetic pressures, normative pressures, cohesion, structural equivalence

Introduction

As organizations increasingly rely on information technology (IT) for many of their products, processes, and services, the ability to adopt and utilize such innovations constitutes a critical success factor in contemporary business environments. Organizational level technology adoption

research examines constructs identified in diffusion of innovation theory (Tornatzky and Klein 1982; Rogers 1995), which considers the ability of perceived characteristics of innovations to both promote and/or deter adoption. Although extensive research within this prevailing paradigm has produced valuable insights into the nature of individual, group, and organizational adoption of IT innovations, recent calls propose new research directions on IT innovation (Fichman 2004). One potentially fruitful area of research focuses on social contagion in IT innovation behavior, a topic not extensively investigated within the information systems (IS) and, to an extent, broader management literature (Fichman 2004). In turn, we investigate the effects of social contagion on the imitative behavior present in organizational IT innovation practices.

Most studies of the imitative behavior of organizations focus on institutional theory, which posits that institutional isomorphism stems from coercive, mimetic, and normative pressures present within the institutional environment (DiMaggio and Powell 1983). Research on IT innovation finds these institutional factors affect organizations' IT adoption decisions (Teo, Wei et al. 2003). To gain a greater understanding of inter-organizational interactions influencing organizational behaviors, research proposes integrating social contagion and institutional theories (Williamson and Cable 2003). Scholars within the management community find indicators of social contagion, specifically cohesion and structural equivalence mechanisms within institutional networks, influencing organizations' adoption of new practices (Greve 1995; Haunschild and Miner 1997; Guler, Guillén et al. 2002; Williamson and Cable 2003). Cohesion focuses on socialization between parties, with more established ties and frequent interactions yielding an environment conducive to sharing of information between parties (Burt 1987). Structural equivalence posits that two actors related to the same set of third parties are likely to

exhibit similarity in behavior, regardless whether there are direct ties between the two actors (Rice and Aydin 1991; Wasserman and Faust 1994; Gnyawali and Madhavan 2001).

Prior work integrates institutional theory and social contagion theory within the context of organizational hiring patterns (Williamson and Cable 2003) as well as organizational practices among ISO 9000 certified firms (Guler, Guillén et al. 2002). In a similar vein, our work examines how an organization's ties to institutional network actors impact organizational structure and actions (DiMaggio and Powell 1983; Fligstein 1985; Burns and Wholey 1993). Hence, building on earlier work within the IS community (Teo, Wei et al. 2003), the current research seeks to understand the added influence of factors grounded in social contagion theory on previously identified predictors of IT adoption decisions within institutional networks. Accordingly, *we investigate the interaction effects of social contagion factors, namely cohesion and structural equivalence, on the relationship between certain established institutional predictors of IT innovation, specifically mimetic and normative pressures, and adoption intentions.*

The balance of this report proceeds as follows. First, the next section reviews the theoretical foundations and relevant literature specific to develop our research hypotheses. Next, we discuss potential implications for theory and practice as well as limitations and future research opportunities.

Theoretical Background and Prior Research

Social Contagion Theory

Imitation has a long and storied history within a wide array of business realms. Organizations imitate innovations ranging from the introduction of new products and services to entering new markets (Lieberman and Asaba 2006). Hence, social contagion theory yields insight into why

organizations engage in imitative behavior. Stemming from the seminal work of LeBon (1903), social contagion theory posits that unconscious processes govern groups of individuals, at the expense of individuality. LeBon maintained that in a crowd, emotions and behaviors drive individuals to willingly surrender their personal interests to the collective interest. These contagious forces give way to imitative behavior. Historically, a number of diverse disciplines, including psychology, sociology, social learning, and organization science have investigated and supported the basic premises underlying social contagion phenomena (Levy and Nail 1993).

Social contagion refers to the spread of affect, attitude, or behavior from an “initiator” to a separate party, or “recipient”, where the recipient does not perceive an intentional influence attempt on the part of the initiator (Levy and Nail 1993). What is important here is that social contagion does not exist when the recipient perceives an intentional attempt to influence behavior or attitudes on the part of the initiator. When applied to innovation adoption, social contagion occurs when a recipient, in an approach-avoidance conflict with respect to the innovation adoption decision, experiences a reduction in uncertainty as a consequence of observing an initiator performing the desired act. Hence, when strong social contagion forces exist, observing prior adopters reduces the recipient’s uncertainty about adopting an IT innovation (Strang and Tuma 1993).

Theoretical work based on social contagion focuses on two types of contagion factors - cohesion and structural equivalence (Burt 1987). Cohesion manifests itself in behavior communications between initiator and recipient. Specifically, the greater the frequency of communication between the two, the more likely initiators will share information specific to the phenomenon with recipients. By contrast, structural equivalence focuses on the nature of parties’ relations and patterns of interactions with other network members. Hence, structural equivalence

examines the extent to which initiators and recipients occupy similar positions and exhibit similar patterns of relations within their institutional networks.

Perhaps due to the unconscious nature of social contagion, extant empirical investigations have rarely used social contagion theory to examine the diffusion of innovations across organizations. Reanalyzing medical innovation diffusion data finds for contagion via structural equivalence, but not cohesion, driving diffusion of antibiotics among physicians (Burt 1987). Moreover, research demonstrates that contagion via structural equivalence influences corporate contribution officers' nonprofit organization evaluations (Galaskiewicz and Burt 1991). Additional work utilizes the heterogeneous diffusion model, grounded in social contagion theory, to show that susceptibility to adoption influences abandonment of the easy-listening radio format over time (Greve 1995). Research also finds evidence of social contagion in the choices of securities analysts to adopt and/or abandon coverage of publicly listed firms (Rao, Greve et al. 2001), with changes occurring as peers change coverage. To our knowledge, no research efforts within the IS literature employ social contagion theory to examine the diffusion of IT innovations.

Institutional Theory

Institutional theory seeks to explain the existence of homogeneity, rather than heterogeneity, in the forms and operations of different organizations (DiMaggio and Powell 1983), emphasizing the taken-for-granted nature of decisions made by organizations (Roberts and Greenwood 1997). As a group of organizations emerges as an industry, institutional theory suggests they develop a set of organizational forms and behaviors that define the environment within which organizations operate (Powell and DiMaggio 1991). When organizations violate shared ideas of appropriate structures and behaviors they may call into question their legitimacy and affect their ability to secure resources and social support (DiMaggio and Powell 1983; Tolbert 1985). Therefore, as

industries mature organizations become more similar to each other within their institutional environment. Institutional theory suggests that this institutional isomorphism (i.e., convergence in organizational forms) results from three specific types of institutional pressures encountered by organizations: coercive, mimetic, and normative (DiMaggio and Powell 1983).

Coercive pressures include formal or informal pressures exerted on an organization by suppliers or buyers necessary for success as well as broader cultural expectations set forth by society (DiMaggio and Powell 1983). Potential sources of coercive pressure include interconnected organizational stakeholders (e.g., business partners, customers, and suppliers), investors, government regulatory agencies, and/or parent corporations (Srinivasan, Lilien et al. 2002). Mimetic pressures stem from environmental uncertainty, thereby resulting in organizations modeling themselves on other organizations (DiMaggio and Powell 1983; Lieberman and Asaba 2006). Sources of mimetic pressures include competitors, industry leaders, and/or other similarly situated enterprises (Fligstein 1985; Haunschild 1993; Lieberman and Asaba 2006). Finally, normative pressures imply that values and norms shared among the members of their social network influence an organization's strategic processes (Zukin and DiMaggio 1990; Scott 2001). These normative pressures arise from a number of potential interconnected initiators, including trade and professional associations, accreditation agencies, and/or professions themselves (Powell and DiMaggio 1991; Grewal and Dharwadkar 2002).

Over the past several decades, institutional theory has become an integral reference framework for the study of organizational adoption of innovations (Roberts and Greenwood 1997). For example, organizations often closely monitor the occurrence of a practice in their industry and the perceived success of organizations that have adopted that practice (Haveman

1993). Likewise, mimetic pressures are driven by frequency of observed behavior, traits of imitated firms, and quality of outcomes (Haunschild and Miner 1997).

Despite the attention given to institutional theory in the broader organizational literature (Mizruchi and Fein 1999; Lieberman and Asaba 2006), this framework has received relatively less attention in the IS field, specifically within IT innovation research (Fichman 2004). Existing efforts include a study of IS outsourcing decisions in the banking industry, demonstrating that organizational conformance to institutional pressures depends on the nature of the pressure (Ang and Cummings 1997). Researchers employ institutional theory to study the adoption of electronic data interchange technology, proposing and testing institutional predictors of adoption intentions (Teo, Wei et al. 2003). More recently, work examines the mediating role of top management on institutional predictors' influence on the assimilation of enterprise resource planning systems (Liang, Saraf et al. 2007).

Integrating Institutional Theory and Social Contagion

Institutional theory integrates ideas from social contagion to the diffusion of innovations across organizations within specific institutional frameworks (DiMaggio and Powell 1983). In considering normative pressures, DiMaggio and Powell acknowledge the presence of contagion forces. They argue that professional organizations often traverse firms within an institutional network diffusing both information and attitudes. Moreover, their work notes that individuals within institutional networks occupy similar positions across member organizations. Despite themes common to social contagion theory, DiMaggio and Powell do not develop specific hypotheses with respect to cohesion and/or structural equivalence. Instead they focus on organizational and field level predictors of institutional isomorphism.

Within institutional theory, noted organizational factors include inter-firm dependence, centralization of resources, uncertainty, goal ambiguity, reliance on managerial credentials, and

trade and professional association participation. By contrast, field level predictors include industry wide dependence on a single source of vital resources, the level of state interactions, an absence of viable alternate organizational forms, technology uncertainty, and professionalism. Neither organizational nor field level predictors specified within institutional theory explicitly consider either cohesion or structural equivalence, despite the clear connections between the two theoretical bases.

DiMaggio and Powell's (DiMaggio and Powell 1983) broader view of institutional isomorphism considers coercion among other pressures, thereby encompassing intentional influence. By definition social contagion limits its characterization to include situations in which the initiator does not openly communicate an intention to influence the recipient (Marsden and Friedkin 1993). Institutional theory makes no such assumptions, with coercive pressures predicated on both formal and informal pressures exerted by initiator organizations on recipient firms (DiMaggio and Powell 1983). Moreover, institutional theory's normative pressures can emerge from government and professional organizations' direct efforts to define behaviors and actions of members of a profession. In contrast, mimetic pressures and those normative pressures not shaped by direct initiatives exhibit an absence of deliberate intentions to influence other institutional members. Accordingly, within the current study we restrict our hypotheses with respect to social contagion factors to mimetic and normative pressures absent intentional influences.

Research in referent fields suggests that integrating social contagion and institutional theory yields deeper insight into how and why inter-organizational interactions influence organizational behaviors (Williamson and Cable 2003). Hence the integration of these two theoretical perspectives is not without precedent. Sociological work sees social contagion effects present

with unintentional normative pressures (Young and Larson 1965; Shrum and Wuthnow 1988). Prior work examining top management team hiring practices similarly draws upon these two related, but divergent, theoretical bases in explaining hiring patterns (Williamson and Cable 2003). Moreover, a cross-national investigation of ISO 9000 quality certificate issuances and diffusion of organizational practices finds cohesion in trade relationships to be an antecedent to coercive and normative pressures (Guler, Guillén et al. 2002). In contrast to the limited investigation of main effects and antecedents in these works, we posit interactions between constructs, where greater levels of social contagion factors result in stronger relationships between these institutional predictors and adoption intentions.

Initiator-Recipient Relationships

We content social contagion factors and institutional predictors by focusing on IT innovation adoption within the initiator-recipient relationship. Briefly, prior adopters constitute “initiators” and potential adopters, “recipients” (Levy and Nail 1993). Moreover, initiators comprise either “interconnected” or “structurally-equivalent” organizations with respect to the recipient firm (Burt 1987). The initiator-recipient relationship constitutes a necessary, but not sufficient, condition for social contagion to occur. Framing our theoretical model on the initiator-recipient relationship provides a mechanism for understanding the moderating effects of social contagion factors on the institutional forces relationship to organization IT adoption intentions.

In applying this framework to the organizational setting, different firms develop their own independent institutional network, which include potential “interconnected” initiators. Consider that firms rely upon individual established contracts with business partners, i.e., financial institutions. These organizations emerge as resource-dominant business partners. Firms sustain

their institutional legitimacy by developing and maintaining these relationships. Hence, the focal firms serve as “recipients”, while business partners constitute “interconnected” initiator organizations, exerting normative pressures on recipient firms.

Additional “interconnected” initiators within institutional settings include suppliers, governmental agencies, and professional associations. These initiators may exert coercive pressures on recipients. Moreover, governmental agencies and professional associations play a significant role within certain industries, credentialing and regulating the activities of individual actors. Here again, both initiator constituencies potentially exert coercive in addition to intentional normative pressures on recipients. The certain focal IT innovation and research context may not, however, give rise to extensive governmental pressures. Prior research examining institutional pressures and IT innovations (Teo, Wei et al. 2003) similarly do not consider such initiators, while other efforts focusing on unique cultural contexts take governmental influences into account (Teo, Wei et al. 2003; Liang, Saraf et al. 2007).

Finally, potential “structurally-equivalent” initiators include competitors and like firms operating in different markets. Within the current work, competitors serve as “structurally-equivalent” initiators with both firms potentially operating out of and/or employing some of the same third party organizations. Consistent with prior research (Teo, Wei et al. 2003; Liang, Saraf et al. 2007), competitors constitute a source of mimetic pressures.

Research Model and Hypotheses

Figure 1 presents our model that integrates mimetic and normative pressures with social contagion factors. Again, coercive pressures assume an intentional use of power to influence another party to act in accordance with the influencer’s intentions. Similarly, normative pressures

may be intentional, as in the case of government regulations, or unintentional, as seen in the sharing of information about organizational practices among members of professional associations. Social contagion theory is predicated on the notion that there is no intentional attempt by an initiator to influence a recipient. Therefore, we do not posit interactions with respect to coercive or intentional normative pressures in our model. Hence, we focus on how social contagion via cohesion and structural equivalence between initiators and recipients moderates the relationships from mimetic and normative pressures to organizations' adoption intentions.

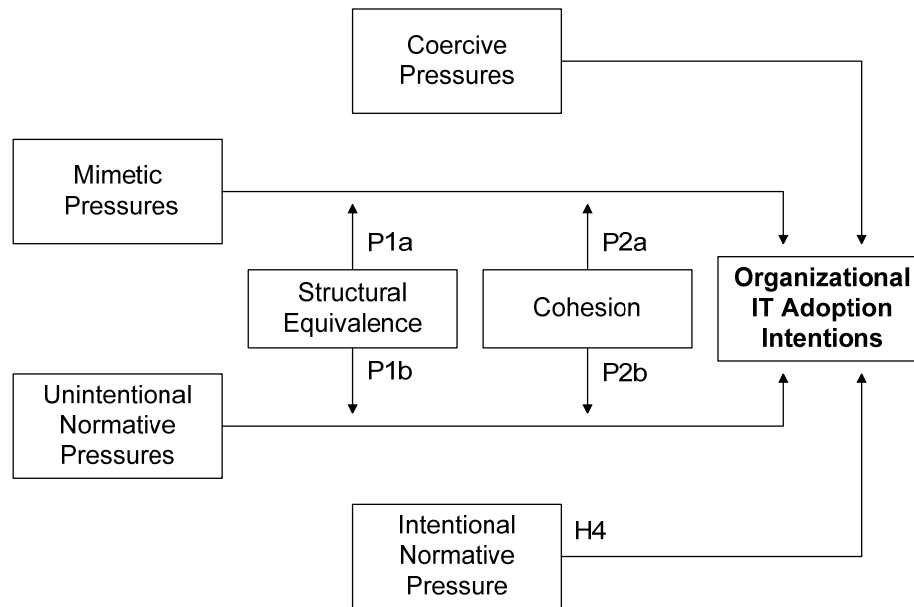


Figure 1. Theoretical Model

Cohesion

Cohesion focuses on interactions between initiator and recipient, with more established ties and frequent interactions yielding an environment conducive to sharing of information between parties. Given the assumption that organizations cannot, or do not, observe others equally, the frequency of interaction between organizations constitutes a potential contagion factor (Greve 1996). Organizational choices are often impacted by the opinions and actions of other

organizations within their environment (Kilduff 1990). Communication proximity, operationalized through the extent of direct and indirect interaction, is shown to influence organizational mechanisms (Rogers and Kincaid 1981). Likewise, direct and frequent communication strengthens attitude and behavioral similarity between two actors (Erickson 1988). Moreover, inter-organizational interactions increase the degree of interconnectedness within institutional networks (Burt 1987). While recent interaction plays a role in shaping attitude, the strength of connections constitutes a greater determinant (Schmitz and Fulk 1991).

Social contagion theory also suggests that in situations of uncertainty, decision makers unintentionally rely upon inter-organizational network ties to gather information used to evaluate the desirability of external resources (Marsden and Friedkin 1993). While work finds that cohesive network structures positively impact the speed and patterns of innovation adoption (Davis and Greve 1997; Ahuja 2000), different structures of network ties affect the diffusion of different innovation practices in organizational fields (Gibbons 2004). Network ties provide information on costs and benefits of adoption at a greater level of detail and persuasiveness than other information sources (Brass, Galaskiewicz et al. 2004), as in the case of interlocking directorates (Davis 1991; Haunschild and Beckman 1998) and dyadic firm-supplier/customer channels (Teo, Wei et al. 2003). Cohesion through network ties may also influence decision makers as the trust existing between two tied organizations encourages the transmission of high-quality, detailed information (Nahapiet and Ghoshal 1998).

In the context of IT adoption, contagion via cohesion arises through established network ties and the subsequent degree of interaction through recurring encounters between recipient firms and initiators. From a potential adopter's perspective, the perceived value of adoption would increase if the recipient's initiator contacts have adopted the innovation and communicated their

reasoning (Davis 1991; Palmer, Jennings et al. 1993). Less frequent interactions inhibit organizations' capacity to view the actions of others within their institutional settings. Moreover, greater cohesion between prior adopters and potential adopters through established ties and subsequent interactions will likely strengthen the values and norms shared within the social network. Hence, we posit that a greater degree of cohesion between potential recipient adopters and (a) business partner as well as (b) competitor initiators will strengthen the relationships between normative and mimetic pressures, respectively, on recipient organizations' intentions to adopt, as stated in the following set of hypotheses.

Proposition 1a: The greater the level of initiators and recipients' cohesion, the greater the relationship between initiator mimetic pressures and recipients' IT adoption intentions.

Proposition 1b: The greater the level of initiators and recipients' cohesion, the greater the relationship between initiator normative pressures, absent direct influence, and recipients' IT adoption intentions.

Structural Equivalence

The structural equivalence perspective posits that two actors related to the same set of third parties are likely to exhibit similarity in behavior, regardless whether there are direct ties between the two actors (Rice and Aydin 1991; Wasserman and Faust 1994; Gnyawali and Madhavan 2001). Similar behavior by institutional actors may be attributed to the homogenizing effect of influences coming from a shared set of third-party ties (Burt 1987). Two actors within an institutional setting connected to the same set of third parties share a common influence, and cohesion between them is viewed as an outcome of common relations with other members of the

system (Mizruchi 1993). Thus, shared third-party ties create a situation of “ecological influence,” where actors may behave similarly because they are influenced by the same set of third actors (Guler, Guillén et al. 2002).

Contagion via structural equivalence manifests itself through similar relational patterns. Such structural equivalence highlights the concept of role equivalence, where two parties are said to be role equivalent given that they have similar relationships with third-parties (Winship and Mandel 1983; Winship 1988; Burt 1990; Mizruchi 1993). In turn, role equivalent parties exhibit like inputs, information, financial support, and socialization among other factors. Structural equivalence is recognized as the extent to which two actors relate to other actors in the same manner (Lorrain and White 1971). The more similar a recipient’s and initiator’s relations with other actors are, the more likely it is that the recipient will quickly adopt any innovation perceived to make the initiator more attractive as the source of relations (Burt 1987). Specifically, the more that the initiator could substitute for the recipient in the recipient’s role relations, the more intense the recipient’s feelings of competition with the initiator are. Accordingly, we posit that recipients and initiators exhibiting greater structural equivalence will see greater influence of (a) normative pressures, in the case of business partner initiators, and (b.) mimetic pressures, for competitor initiators, on adoption intentions.

Proposition 2a: The greater the level of initiators and recipients’ structural equivalence, the greater the relationship between initiator mimetic pressures and recipients’ IT adoption intentions.

Proposition 2b: The greater the level of initiators and recipients' structural equivalence, the greater the relationship between initiator normative pressures, absent direct influence, and recipients' IT adoption intentions.

Discussion and Implications

This work proposes advancing recent research showing institutional networks' influence on organizations' structure and actions include shaping IT adoption decisions. By extending existing empirical work (Teo, Wei et al. 2003) through integrating constructs developed within social contagion theory (Burt 1987), we believe that such an approach can contribute to furthering the overall IS community's understanding of organizational IT adoption intentions beyond prevailing paradigms (Fichman 2004). Specifically, our work posits that within the institutional context, via cohesion and structural equivalence, adoption decisions may be more influenced by mimetic and normative pressures. We believe that these extensions serve to advance the discussion among IS academics with respect to further integrating the insights of other theoretical disciplines in exploring technology adoption phenomena.

The adopter organization's cohesion with initiators influence on the mimetic and normative pressures-IT adoption decision relationships is consistent with the notion that adoption follows observation of others (Bandura 1977). This proposition also backs the contention that decision makers unintentionally rely upon inter-organizational network ties to gather information used to evaluate the desirability of external resources (Marsden and Friedkin 1993). The rapid pace of change in technology may contribute to greater uncertainty with respect to adoption decisions. Facilitation of a greater flow of information through cohesion between prior and potential adopters may serve to reduce uncertainty with respect to IT innovations. Likewise, structural

equivalence between initiators and potential recipient adopters may play a role in moderating the relationship between mimetic pressures and adoption intentions, supporting a homogenizing effect of influences from a shared set of third-party ties (Burt 1987). The more similar competitor initiators' and recipients' relations with other network actors; the more likely it is that the recipient will succumb to mimetic pressures to adopt the focal IT innovation.

In framing the initiator-recipient relationship, such an operationalization of the institutional setting provides a mechanism for employing social contagion, as this theory initially focused on individual level phenomenon. Moreover, in framing our efforts on the initiator-recipient relationship, we provide a mechanism for examining different initiator constituencies within an institutional network, previously overlooked in social contagion efforts, but captured within institutional theory. This provides a roadmap to future research endeavors examining phenomenon within such environments. Similarly, future research efforts exploring IT within divergent institutional settings can draw upon this framework in identifying and operationalizing key stakeholder relationships potentially influencing the specific research phenomenon.

Theoretical Contributions

We present both established institutional predictors and social contagion factors within a comprehensive model. Integrating these research streams yields a broader view of the diffusion of technologies across organizations. While prior empirical efforts consider both theoretical bases, these works take limited views of the two streams. In one case, only cohesion is considered alongside institutional factors as an independent variable, with no examination of structural equivalence (Williamson and Cable 2003). In the other instance, researchers consider both social contagion factors as antecedents, finding for a relationship between cohesion and coercive as well as normative pressures (Guler, Guillén et al. 2002). This work does not address

potential conflicts between social contagion theory's assumption of an absence of a direct influence and the presence of such influences inherent in both coercive and normative pressures.

Additionally, to our knowledge, our work is one of the first efforts to consider interactions between variables across both theoretical perspectives. This approach is consistent with the proposition that integrating social contagion and institutional theories allows for gaining insights into how and why inter-organizational interactions influence organizational behaviors (Williamson and Cable 2003). Exploring the moderating effects of cohesion and structural equivalence demonstrates the role that social contagion plays in setting the stage for institutional isomorphism. Moreover, our work proposes that institutional settings shape the IT adoption context. Future research efforts should further examine post adoption environments as well as possible links to performance implications of technology diffusion.

The forces of social contagion may cause organizations to converge on common choices more rapidly and in greater numbers than they might otherwise. In the context of IT adoption, the consequences of such imitation stemming from social contagion can be beneficial or disastrous. For example, the widespread and highly contagious adoption of electronic mail has greatly enhanced coordination mechanisms and decision processes within and across organizations (Grover, Fiedler et al. 1997). On the other hand, the contagious frenzy surrounding the boom of Internet commerce resulted in numerous business fads and a disastrous bust of e-commerce business models (Lieberman and Asaba 2006). Coupled with rapid changes in technology, contagious adoption may lock organizations and even industries into inferior innovations. For instance, in the embryonic stage of high-definition television (HDTV) Japanese electronic firms adopted and promoted analog technology (Lieberman and Asaba 2006). Given the evident superiority of digital over analog, these firms found themselves at a significant disadvantage.

Implications for Practice

In practice, imitating another organization's behavior can allow managers to take advantage of the other's information, enabling behavior based on a larger knowledge base than can be directly observed. Thus, imitation serves as a reasonable response to decision making under conditions of uncertainty (March and Simon 1958). Contagious adoption is more problematic when other organizations imitate, as each imitation transmits either the information of the imitated organization or the information of the organization that, in turn, imitated. Contagion of adoption may thus cause adoption in spite of absence of extensive relevant information, leading to the possibility of faddish practices (Abrahamson 1991).

Another important practical implication arising from our proposed model directs attention to how interaction within institutional networks may encourage institutional isomorphism with respect to technology adoption. Interactions between potential adopters and successful prior adopters in all likelihood facilitate the sharing of information. Accordingly, initiators might encourage, if not facilitate, interactions between prior and potential adopters within institutional networks, as such an approach may serve to encourage IT adoption behaviors. Moreover, the forces of social contagion may originate from different initiator constituencies, including "interconnected" business partners and "structurally-equivalent" competitors as within the current work.

Conclusions and Future Research Directions

Given institutional settings where efficient competition among firms, yields connections through cohesion and/or structural equivalence, such communication circuits may raise awareness of institutional practices that might encourage or subdue innovation diffusion. Future research might capture the externality effects inherent in such interactions. These observations could

enhance our understanding of the acceleration or constraining of organic IT innovation adoption. Our work further gives rise to the intriguing possibility of the notion of cycles of innovation. Here, bandwagon effects within an institutional setting may in fact be tempered by structural affects, e.g., how a particular network shares information. The former focuses on adoption issues, while the interaction focuses on the shape of the diffusion curve.

Future work should also look to constructs and theoretical perspectives that span individual and organizational IT adoption. Clearly, subjective norms based on the theory of planned behavior (Fishbein and Ajzen 1975; Ajzen 1991) shares common themes with both institutional and social contagion theories. An examination of individual and organizational level constructs might advance our understanding of the complex interplay between the two in influencing technology diffusion. Such an approach would also be consistent with recommendations noted in prior works (Fichman 2004).

Finally, another future line of research should examine the effects of social contagion on IT innovation adoption across industries. For example, during the mid-1990s, enterprise resource planning (ERP) constituted a major focus of IS initiatives in many industries and organizations. A significant number of large organizations attempted to implement ERP without making sufficient justifications for pursuing such initiatives (Keller 1999). Recent work extends institutional predictors to post adoption behaviors with respect to ERP (Liang, Saraf et al. 2007). Institutional predictors may provide a limited theoretical lens through which to examine similar IT innovation adoption phenomena across industries, as such predictors often focus on a single institutional setting. Future research should explore the role of social contagion factors in shaping pre and post adoption decisions at the organizational and industry levels of analysis.

References

- Abrahamson, E. (1991). "Managerial Fads and Fashions: The Diffusion and Rejection of Innovations." Academy of Management Review **16**(3): 586-612.
- Ahuja, G. (2000). "Collaboration Networks, Structural Holes and Innovation: A Longitudinal Study." Administrative Science Quarterly **45**: 425-455.
- Ajzen, I. (1991). "The Theory of Planned Behavior." Organizational Behavior and Human Decision Processes **50**(2): 179-211.
- Ang, S. and L. L. Cummings (1997). "Strategic Response to Institutional Influences on Information Systems Outsourcing." Organization Science **8**(3): 235-256.
- Bandura, A. A. (1977). Social Learning Theory. Englewood Cliffs, New Jersey, U.S.A., Prentice Hall.
- Brass, D. J., J. Galaskiewicz, et al. (2004). "Taking Stock of Networks and Organizations: A Multilevel Perspective." Academy of Management Journal **47**(6): 795-818.
- Burns, L. R. and D. R. Wholey (1993). "Adoption and Abandonment of Matrix Management Programs: Effects of Organizational Characteristics and Interorganizational Networks." Academy of Management Journal **36**(1): 106-138.
- Burt, R. S. (1987). "Social Contagion and Innovation: Cohesion Versus Structural Equivalence." American Journal of Sociology **92**(6): 1287-1335.
- Burt, R. S. (1990). "Detecting Role Equivalence." Social Networks **12**(1): 83-97.
- Davis, G. F. (1991). "Agents without Principles? The Spread of the Poison Pill through the Intercompany Network." Administrative Science Quarterly **36**(4): 583-613.
- Davis, G. F. and H. R. Greve (1997). "Corporate Elite Networks and Governance Changes in the 1980s." American Journal of Sociology **103**(1): 1-37.
- DiMaggio, P. J. and W. W. Powell (1983). "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields." American Sociological Review **48**(2): 147-160.
- Erickson, B. H. (1988). The Relational Basis of Attitudes. Social Structures: A Network Approach. B. Wellman and S. D. Berkowitz. New York City, New York, U.S.A., Cambridge University Press: 99-121.
- Fichman, R. G. (2004). "Going Beyond the Dominant Paradigm for Information Technology Innovation Research: Emerging Concepts and Methods." Journal of Association for Information Systems **5**(8): 314-355.
- Fishbein, M. and I. Ajzen (1975). Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research. Reading, Massachusetts, U.S.A., Addison-Wesley Publishing Company.
- Fligstein, N. (1985). "The Spread of the Multidivisional Form Among Large Firms, 1919-1979." American Sociological Review **50**(3): 377-391.
- Galaskiewicz, J. and R. S. Burt (1991). "Interorganization Contagion in Corporate Philanthropy." Administrative Science Quarterly **36**(1): 88-105.
- Gibbons, D. E. (2004). "Network Structure and Innovation Ambiguity Effects on Diffusion in Dynamic Organizational Fields." Academy of Management Journal **47**(6): 938-951.
- Gnyawali, D. R. and R. Madhavan (2001). "Cooperative Networks and Competitive Dynamics: A Structural Embeddedness Perspective." Academy of Management Review **26**(3): 431-446.

- Greve, H. R. (1995). "Jumping Ship: The Diffusion of Strategy Abandonment." Administrative Science Quarterly **40**(3): 444-473.
- Greve, H. R. (1996). "Patterns of Competition: The Diffusion of a Market Position in Radio Broadcasting." Administrative Science Quarterly **41**(1): 29-60.
- Grewal, R. and R. Dharwadkar (2002). "The Role of the Institutional Environment in Marketing Channels." Journal of Marketing **66**(3): 82-97.
- Grover, V., K. D. Fiedler, et al. (1997). "Empirical Evidence on Swanson's Tri-core Model of Information Systems Innovation." Information Systems Research **8**(3): 273-287.
- Guler, I., M. F. Guillén, et al. (2002). "Global Competition, Institutions, and the Diffusion of Organizational Practices: The International Spread of ISO 9000 Quality Certificates." Administrative Science Quarterly **47**(2): 207-232.
- Haunschild, P. R. (1993). "Interorganizational Imitation: The Impact of Interlocks on Corporate Acquisition Activity." Administrative Science Quarterly **38**(4): 564-592.
- Haunschild, P. R. and C. M. Beckman (1998). "When Do Interlocks Matter?: Alternate Sources of Information and Interlock Influence." Administrative Science Quarterly **43**(4): 815-844.
- Haunschild, P. R. and A. S. Miner (1997). "Modes of Interorganizational Imitation: The Effects of Outcome Salience and Uncertainty." Administrative Science Quarterly **42**(3): 472-500.
- Haveman, H. A. (1993). "Follow the Leader: Mimetic Isomorphism and Entry Into New Markets." Administrative Science Quarterly **38**(4): 593-627.
- Keller, E. (1999). "Lessons Learned." Manufacturing Systems **17**(11): 44-50.
- Kilduff, M. (1990). "The Interpersonal Structure of Decision Making: A Social Comparison Approach to Organizational Choice." Organizational Behavior and Human Decision Processes **47**(2): 270-288.
- Le Bon, G. (1903). The Crowd: A Study of the Popular Mind. London, T. Fisher Unwin.
- Levy, D. A. and P. R. Nail (1993). "Contagion: A Theoretical and Empirical Review and Reconceptualization." Genetic, Social and General Psychology Monographs **119**(2): 235-284.
- Liang, H., N. Saraf, et al. (2007). "Assimilation of Enterprise Systems: The Effects of Institutional Pressures and Mediating Role of Top Management." MIS Quarterly **31**(1): 59-87.
- Lieberman, M. B. and S. Asaba (2006). "Why Do Firms Imitate Each Other?" Academy of Management Review **31**(2): 366-385.
- Lorrain, F. and H. C. White (1971). "Structural Equivalence of Individuals in Social Networks." Journal of Mathematical Sociology **1**(1): 49-80.
- March, J. G. and H. A. Simon (1958). Organizations. New York City, New York, U.S.A., John Wiley & Sons, Inc.
- Marsden, P. V. and N. E. Friedkin (1993). "Network Studies of Social Influence." Sociological Methods and Research **22**(1): 127-151.
- Mizruchi, M. S. (1993). "Cohesion, Equivalence, and Similarity of Behavior: A Theoretical and Empirical Assessment." Social Networks **15**(3): 275-307.
- Mizruchi, M. S. and L. C. Fein (1999). "The Social Construction of Organizational Knowledge: A Study of the Uses of Coercive, Mimetic, and Normative Isomorphism." Administrative Science Quarterly **44**(4): 653-683.
- Nahapiet, J. and S. Ghoshal (1998). "Social Capital, Intellectual Capital, and the Organizational Advantage." Academy of Management Executive **23**(2): 242-266.

- Palmer, D. A., P. D. Jennings, et al. (1993). "Late Adoption of the Multidivisional Form by Large U.S. Corporations: Institutional, Political, and Economic Accounts." Administrative Science Quarterly **38**(1): 100-131.
- Powell, W. W. and P. J. DiMaggio (1991). The New Institutionalism in Organizational Analysis. Chicago, Illinois, U.S.A., University of Chicago Press.
- Rao, H., H. R. Greve, et al. (2001). "Fool's Gold: Social Proof in the Initiation and Abandonment of Coverage by Wall Street Analysts." Administrative Science Quarterly **46**(3): 502-526.
- Rice, R. E. and C. Aydin (1991). "Attitudes Toward New Organizational Technology: Network Proximity as a Mechanism for Social Information Processing." Administrative Science Quarterly **36**(2): 219-244.
- Roberts, P. W. and R. Greenwood (1997). "Integrating Transaction Cost and Institutional Theories: Toward a Constrained-efficiency Framework for Understanding Organizational Design Adoption." Academy of Management Review **22**(2): 346-373.
- Rogers, E. M. (1995). Diffusion of Innovation. New York City, New York, U.S.A., The Free Press.
- Rogers, E. M. and L. D. Kincaid (1981). Communication Networks: Toward a New Paradigm for Research. New York City, New York, U.S.A., Free Press.
- Schmitz, J. and J. Fulk (1991). "Organizational Colleagues, Information Richness, and Electronic Mail: A Test of the Social Influence Model of Technology Use." Communication Research **18**(4): 487-524.
- Scott, W. R. (2001). Institutions and Organizations. Thousand Oaks, California, U.S.A., Sage Publications, Inc.
- Shrum, W. and R. Wuthnow (1988). "Reputational Status of Organizations in Technical Systems." American Journal of Sociology **93**(4): 882-912.
- Srinivasan, R., G. L. Lilien, et al. (2002). "Technological Opportunism and Radical Technology Adoption: An Application to e-Business." Journal of Marketing **66**(3): 47-60.
- Strang, D. and N. B. Tuma (1993). "Spatial and Temporal Heterogeneity in Diffusion." American Journal of Sociology **99**(3): 614-639.
- Teo, H. H., K. K. Wei, et al. (2003). "Predicting Intention to Adopt Interorganizational Linkages: An Institutional Perspective." MIS Quarterly **27**(1): 19-50.
- Tolbert, P. S. (1985). "Institutional Environments and Resource Dependence: Sources of Administrative Structure in Institutions of Higher Education." Administrative Science Quarterly **30**(1): 1-13.
- Tornatzky, L. G. and K. J. Klein (1982). "Innovation Characteristics and Innovation Adoption-implementation: A Meta Analysis of Findings." IEEE Transactions on Engineering Management **29**(11): 28-45.
- Wasserman, S. and K. Faust (1994). Social Network Analysis: Methods and Applications. New York City, New York, U.S.A., Cambridge University Press.
- Williamson, I. O. and D. M. Cable (2003). "Organizational Hiring Patterns, Interfirm Network Ties, and Interorganizational Imitation." Academy of Management Journal **46**(3): 349-358.
- Winship, C. (1988). "Thoughts About Roles and Relations: An Old Document Revisited." Social Networks **10**(3): 209-231.
- Winship, C. and M. Mandel (1983). "Roles and Positions: A Critique and Extension of the Blockmodeling Approach." Sociological Methodology **14**: 314-344.

- Young, R. C. and O. F. Larson (1965). "The Contribution of Voluntary Organizations to Community Structure." American Journal of Sociology **71**(2): 178-186.
- Zukin, S. and P. DiMaggio (1990). Structures of Capital: The Social Organization of the Economy. New York City, New York, U.S.A., Cambridge University Press.